

REMARKS

The present application is amended in a manner to place the application in condition.

Claim Rejections-35 USC §112

Claim 27 was rejected under 35 U.S.C. §112, second paragraph, for being indefinite.

The claim was rejected for not reciting any particular numeric range for the percentage. This numeric range was inadvertently deleted in the Therefore, withdrawal of the rejection is respectfully requested.

Status of the Claims

Claims 27 and 52 are amended.

The "consisting essentially of" language from claim 27 is considered open language for components that do not materially affect the basic and novel characteristic(s) of the claimed invention. As demonstrated in table 1 of the specification, the basic and novel characteristics of the isolated negatively charged polysaccharide includes a higher inhibitory effect on the binding of particularly infectious microorganisms binding to the surface of human cells compared to isolated polysaccharides that do not bind to a positively charged column.

Support for the amendment to claim 52 may be found, for example in paragraph [0008] of the published application.

Claims 27-29, 31-44, 48-50, 52 remain in this application.

Claims 31-34, 38 and 40 have been withdrawn.

Claim Rejections-35 USC §102/103

Claims 27-28, 35-37, 39, 41-44 and 48-49 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) over YARON et al. J. Agric. Food Chem 1992 (YARON), as evidenced by RO et al. J. Pharm. Exper. Therap. 2000 (RO) and MADIS et al. U.S. 5,861,761 (MADIS).

This rejection is respectfully traversed for the reasons that follow.

The present invention for the first time demonstrated that negatively charged polysaccharides, e.g., as claimed in independent claims 27 and 52, have excellent curative properties.

This is demonstrated, for example, in table 1 of the application, where the fraction with negatively charged polysaccharides (I-D₁) is shown to have a substantial higher inhibitory effect on the binding of particularly infectious microorganisms to the surface of human cells compared to the fraction with polysaccharides that do not bind to the positive column (I-D₀). The polysaccharides in fraction I-D₀ do not differ from the polysaccharides in fraction I-D₁, in monosaccharide

content, i.e. both fractions consist of polysaccharides composed of approximately 60 - 90% mannose, 10 - 30% glucose and 0 - 10% other monosaccharides. The shown difference in inhibition of mucin binding therefore results from the difference in negative charge.

The present patent application thus claims a composition essentially consisting of these negatively charged polysaccharides (in claim 27) or a composition consisting of the isolated fraction of these negatively charged polysaccharides (in claim 52), as well as a process of preparing such a composition involving specifically isolating these negatively charged polysaccharides (by passing a subfraction over a positively charged column).

None of the cited documents discloses or suggests these negatively charged polysaccharides or their improved curative properties. Moreover, none of the cited documents discloses or suggests isolating negatively charged polysaccharides.

Therefore, none of the cited documents, either taken alone or in combination, anticipate or render obvious amended independent claims 27 or 52.

YARON, for example, was offered as a primary reference in the 102/103 rejection, is concerned with aloe vera gel. However, YARON discloses that the aloe vera gel contains a minor amount (0.2%) of polysaccharides. Thus, YARON does not disclose a composition consisting essentially of isolated polysaccharides,

or a composition consisting of an isolated polysaccharides fraction.

YARON also does not disclose or suggest isolated negatively charged polysaccharides.

Moreover, YARON fails to disclose or suggest specifically isolating the negatively charged polysaccharides for use in a composition. Accordingly, amended independent claims 27 and 52 are deemed both novel and non-obvious over YARON.

RO is unable to remedy these deficiencies of YARON for reference purposes. Indeed, RO is not at all concerned with polysaccharides. RO is solely interested in an "isolated single constituent of aloe vera, alprogen". That is, RO isolates the glycoprotein alprogen. See, e.g., the last paragraph prior to the Material and Methods section.

Glycoproteins and polysaccharides are completely different molecules. There is no disclosure or suggestion in RO to isolate polysaccharides, let alone specifically isolating negatively charged polysaccharides for use in a composition.

Thus, amended independent claims 27 and 52 are deemed both novel and non-obvious over RO.

Accordingly, a combination of YARON and RO neither teaches nor suggests the claimed invention. One of ordinary skill in the art would not have been given any indication or incentive by either YARON or RO to specifically isolate negatively charged polysaccharides. One also does not find any hint or suggestion in

either YARON or RO that these negatively charged polysaccharides have particularly good curative properties. In fact, neither document discloses negatively charged polysaccharides at all.

The position of the Official Action was that the skilled person would have been motivated to isolate negatively charged polysaccharides, for the expected benefit of purifying negative charged molecules. However, the Official Action fails to provide any finding of fact for isolating negatively charged polysaccharides. Indeed, the only negatively charged molecule is a glycoprotein.

Thus, this conclusion appears to be solely based on hindsight since the present invention demonstrated for the first time that particularly the negative polysaccharides have excellent curative properties. Prior to the filing date of the present patent application this was neither shown nor suggested in the art, and neither YARON nor RO even disclose negatively charged polysaccharides.

MADIS does not at all disclose the polysaccharides according to claim 27 or claim 52. Therefore, amended claims 27 and 52 are clearly novel and non-obvious over MADIS alone or in any combination.

Therefore, withdrawal of the rejection of the independent claim 27 and dependent claims 28, 35-37, 39, 41-44 and 48-49 is respectfully requested.

Claim Rejections-35 USC §103

Claims 27-29, 35-37, 39, 41-44 and 52 were rejected under 35 U.S.C. §103(a) over QIU et al. U.S. 6,133,440 (QIU) in view of STRICKLAND et al. U.S. 5,824,659 (STRICKLAND), YARON and RO. This rejection is respectfully traversed for the reasons that follow.

QUI fails to disclose polysaccharides comprising 10 - 30% D-glucose. Moreover, QUI fails to disclose or suggest a composition consisting essentially of isolated polysaccharides that are negatively charged, or a composition consisting of an isolated fraction of these polysaccharides, as recited in the independent claims. There is also no indication or incentive given by QUI for the skilled person to specifically use the negatively charged polysaccharides in a composition to obtain curative properties.

Thus, the composition described in independent claims 27 and 52 is both novel and non-obvious in view of QUI.

STRICKLAND fails to remedy these shortcomings of QUI for reference purposes.

STRICKLAND also fails disclose that the polysaccharides comprise 10 - 30 %D-glucose, and that the polysaccharides are negatively charged and bind to a positively charged column. STRICKLAND also fails to disclose or suggest to specifically isolating negatively charged polysaccharides.

Thus, the composition described in independent claims 27 and 52 is both novel and non-obvious in view of STRICKLAND.

For the reasons discussed above, YARON and RO also fail to remedy the shortcomings of QUI and/or STRICKLAND for reference purposes.

Indeed, the Official Action fails to show a finding of fact for isolated negatively charged polysaccharides, let alone composition consisting essentially of or consisting of an isolated negatively charged polysaccharides fraction as recited in independent claims 27 and 52, respectively.

Therefore, the proposed combination of QUI, STRICKLAND, YARON and RO fail to render obvious the independent claims 27 and 52, and dependent claims 28, 29, 35-37, 39, and 41-44, and withdrawal of the rejection is respectfully requested.

Claim 50

It is respectfully noted that claim 50 was not rejected under either ground of rejection. However, it is respectfully submitted that claim 50 is also novel and non-obvious based on any of the above discussed documents, as this claim depends from claim 27.

Conclusion

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance

at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any deficiency or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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